Newsletter of the North Dakota Nonpoint Source Pollution Task Force

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K-12 Educators "Discover Today's Missouri River."

by Bill Sharff, Project WET Director

The Missouri River in North Dakota is the lifeblood of the state and the heart of its natural, cultural, economic and social landscape. River managers, decision-makers and stakeholders, as well as everyday people in the Missouri River basin, face difficult and controversial issues that beg for resolution. The many uses of Missouri River water complicate the possibility of unified resolutions to these Missouri River issues. However, all agree compromises must be made on these issues for the well-being of the river basin and its natural and human inhabitants.

Forty-six North Dakota K-12 educators came face-to-face with Missouri River issues while attending the Project WET *Explore Your Watershed* first annual "Discover Today's Missouri River" Institute.

*(**River Institute** ... cont. on page 2)*

"Quality, quality, quality. I loved the whole institute. Thanks so much for this unique learning opportunity." -- Valerie Johnson, grades five through eight teacher, Marmarth

Participants of the 2003 "Discover Today's Missouri River" Institute

Bruce Engelhardt, State Water Commission, gives a presentation on Missouri River basin issues.

(***River Institute*** *... cont. from page 1)*

Andy Mork, chairman of the Burleigh-Oliver-Morton-McLean-Mercer (BOMMM) Board, discusses Missouri River bank stabilization, irrigation and delta formation.

The institute was held July 20 through 25, 2003 at the Western 4-H Camp near Washburn, North Dakota.

The institute included seven Missouri River issue segments, two major half-day environmental investigation segments, seven Missouri River use field tours, examination of four major Project WET teacher curriculum guides, 11 hands-on activities, two environmental model demonstrations, personal journaling and an institute evaluation.

Twenty-three water-use tour guides and Missouri River resource professionals and scientists presented and led discussions on a number of Missouri River issues. Additionally, participants were able to observe Lake Sakakawea from pontoons donated by Captain Kit's Marina.

The institute placed great emphasis on participant journaling. Participants constructed and decorated their journals with materials that reflected Missouri River water uses. Each day of the institute, participants were required to journal different concepts (e.g., their perspectives on the river), reflect on river issues and highlights of their environmental investigations and explain completed hands-on activities and how they could be integrated into their classrooms.

Activities from three all-new Project WET Activity Guides ("Healthy Water, Healthy People," "Watershed Managers" and "Discover the Missouri River") were completed throughout the week. Missouri River topics covered through the activities correlated to the water-use tours and to the issue discussions by presenters.

(***River Institute*** *... cont. on page 3)*

"I have taken many classes in the last 20 years, and this one rates as the best." -- Brantley Forgy, grades seven through twelve teacher, Killdeer

"Exceptional. I would highly recommend the class to all other teachers. Job well done." -- Tiffany Fitzgerald, grade eight teacher, Bismarck

"I'm so glad I took this class. It was organized, informative and fun – what more could I ask for?" -- Benita Saur, grades nine through 12 teacher, Mandan

Jim Bach, Western States Power, discusses the processes involved in distributing power from the Missouri River.

*(**River Institute** ... cont. on page 3)*

In addition to Project Wet director Bill Sharff, the Missouri River Institute was taught by several Project WET facilitators, including Jim Collins, WET facilitator and North Dakota Department of Health environmental scientist; Angie Bartholomay, WET facilitator and science teacher from Bottineau; and Pam Hintz, WET facilitator and science teacher from Elgin/New Leipzig. Many professionals representing local, state and federal agencies and organizations also were involved in the instruction.

The institute was funded in part by an EPA Section 319 Nonpoint Source Pollution grant, the State Water Commission, county water resource districts, soil conservation districts and local school districts.

"Outstanding! I love these Project WET classes. Keep it up!" -- Melisa Rames, grade seven teacher from Fargo

Kathleen Rowland (right), USGS, instructs participants how to measure streamflow and velocity at the Knife River.

Department of Health Drafts Rule Revisions for Animal Feeding Operations

In December 2002, the U.S. Environmental Protection Agency announced new federal requirements for concentrated animal feeding operations (CAFOs) under the Clean Water Act National Pollutant Discharge Elimination System (NPDES) regulations. These regulations went into effect April 14, 2003.

States were given one year to revise their NPDES regulations or until April 14, 2004. If legal changes were required, states were given an additional year.

Since February 2003, when the EPA rules were published in the Federal Register, the Division of Water Quality of the North Dakota Department of Health has been working to draft necessary revisions to the state rules for animal feeding operations.

The department will propose revisions to North Dakota Administrative Code Chapter 33-16-01, *North Dakota Pollutant Discharge Elimination System*, adopting the EPA regulations by reference. It will also propose extensive revisions to NDAC Chapter 33-16-03, *Control of Pollution from Certain Livestock Enterprises*, renaming it *Control of Pollution from Animal Feeding Operation*s. A document entitled *North Dakota Technical Standards for Animal Feeding Operations* also has been drafted. It will be incorporated by reference in the rules.

The revised rules will address requirements for the designation of CAFOs, "no potential to pollute" determinations, permit requirements, permit application content and procedures, facility requirements,

*(**CAFO rules** ... cont. on page 5)*

McDowell TMDL Project Initiated in 2003

Section 303(d) of the Clean Water Act (CWA) and accompanying EPA regulations require states to identify surface waters (e.g., lakes and rivers) that do not meet water quality standards and to develop plans for improving them. Known also as the Total Maximum Daily Load (TMDL) Program, Section 303(d) provides a process for determining pollution budgets that, once implemented, will ensure Clean Water Act goals are met.

The 2002 TMDL list for North Dakota, approved by EPA in April 2003, included 48 lakes and reservoirs totaling 517,782 acres and 132 river and stream segments totaling 4,594 miles. Several new TMDL projects from the 2002 list were initiated in 2003. One of these was McDowell Dam near Bismarck in Burleigh County.

McDowell Dam was created in 1976 by damming a small tributary of Apple Creek, which is a tributary of the Missouri River. McDowell Dam is a 56.5-acre impoundment with a 3,939-acre agricultural watershed. It is located about five miles east of Bismarck in Burleigh County.

Beneficial uses of McDowell Dam, as identified in the *Standards of Water Quality for the State of North Dakota*, are (1) municipal and domestic water supply, (2) recreation, (3) fishing and wildlife, (4) agricultural and (5) industrial water supply.

These beneficial uses have been threatened as McDowell Dam has experienced increased algal blooms and repeated summer fish kills due to low dissolved oxygen.

Eutrophication is the process by which a lake is enriched by nutrients, increasing the production of aquatic plants and algae. The North Dakota Department of Health has defined McDowell Dam as "hypereutrophic."

As a first step to reducing the cumulative effects of pollutants, the Burleigh County Water Resource District initiated a TMDL development project for McDowell Dam and its watershed. The primary goal of this project was to develop a nutrient and sediment TMDL for the reservoir which, if implemented, will improve the lake's trophic status, thereby improving and maintaining its beneficial uses for fishing, recreation and water supply.

From July 2002 through June 2003, water samples were collected and analyzed from one upstream site, one lake site and one downstream seepage site. A watershed inventory was also initiated to identify priority areas in the watershed where nutrient and sediment loading is of greatest concern.

Results of the project monitoring tasks will be used to identify primary sources of nutrient and sediment loading to the reservoir and establish realistic pollutant reduction goals for restoring and maintaining all the beneficial uses of McDowell Dam.

McDowell Dam

McDowell Dam provides great recreation opportunities. One example is "McDowell Dam Fun Day," which is held one Saturday afternoon in July during Bismarck Parks and Recreation District's July Celebration. There are games and drawings for prizes held throughout the afternoon. Families swim, play games and have a lot of fun.

Updated Advisory Addresses Exposure to Mercury in Fish

In September 2003, the North Dakota Department of Health issued an updated advisory about eating fish caught in the state's lakes and rivers. The advisory is contained in *A Guide to Safe Eating of Fish in North Dakota*, a one-page fact sheet that discusses how the general population and higher-risk groups, such as children and pregnant women, can reduce their exposure to mercury found in fish.

The guide includes an advisory chart listing the recommended number of meals per month of certain types and sizes of fish caught in North Dakota lakes and rivers, including the Red River, Missouri River, Lake Oahe, Lake Sakakawea and Devils Lake.

Most fish are healthy to eat. However, any fish (whether store-bought or sports-caught) could contain contaminants. Mercury is one contaminant present in fish from North Dakota's lakes and rivers. While the levels of mercury are usually low in smaller fish, larger fish of certain species can contain levels that may be harmful if those fish are eaten too often.

Mercury is released into the environment through natural processes such as runoff from natural leaching, volcanic activity and forest fires. Concern about mercury contamination has grown because human activity, including the burning of fossil fuels and waste incineration, also releases mercury into the environment. Once in the earth's atmosphere, mercury falls to the earth as dry deposition or rainfall and enters lakes and rivers. There, certain biological conditions can turn inorganic mercury into organic methyl-mercury, which can concentrate to higher levels in fish. People are exposed to mercury primarily by eating fish.

While there have been no known cases of illness related to mercury in North Dakota, it is important that people make wise choices about the kinds of fish they eat and how often.

To obtain a copy of *A Guide to Safe Eating of Fish in North Dakota*, please call or visit the department's website:

North Dakota Department
of Health
Division of Water Quality
701.328.5210
http://www.health.state.nd.us/wq

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*(**CAFO rules** ... cont. from page 3)*

record keeping and reporting requirements, enforcement and compliance, departmental inspection, prohibited activities and public participation.

The technical standards will include requirements and recommendations for site selection standards, design criteria for manure systems, operation and maintenance plans, nutrient management plans and emergency action plans for spills.

These revisions have been sent to stakeholders for review prior to preparing final drafts for the public hearing and 60-day comment period on the proposals. The public comment period should begin Dec. 8, 2003, and end Feb. 7, 2004, with a public hearing scheduled for Jan. 8, 2004.

The department plans for the rule revisions and technical standards to go into effect June 1, 2004.

North Dakota Tree Trading Cards Are Available

Trading cards showing 25 trees common in North Dakota have been printed. In addition to color photographs of each tree and its leaf type, the cards provide a general description, identification facts and useful information.

The cards were developed by the Coalition for Conservation and Environmental Education (C2E2) from a generous donation by Virginia George, a local Bismarck educator and C2E2 member.

To obtain a set of tree trading cards, please email Jim Collins at jcollins@state.nd.us or call the North Dakota Department of Health, Division of Water Quality, at 701.328.5210.

North Dakota Tree Trading Card

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